Chapter 4:

Sect. 4.1 # 1-4, 17-22 (make good graphs including coordinates)

Sect. 4.1 #5-8, 15,16, 23-33(odd)
Sect. 4.2 #5-8, 35-42

Sect. 4.2 #15 - 20(odd) (no graphs), 23 - 33 (odd) (graphs)

Sect. 4.1 #5-11, 24-32(even),37,38,41a-c
Sect. 4.2 #6-34(even, 47(not f), 48(not e)

Sect 4.3 #1-6, 7-20(3), 21-32(3), 33-46(2) 49, 50

Sect. 4.3 Do 5 more problems to get solid
"Quiz" (4 problems we did in class, see the lesson)

1st page of Sinusoidal Application handout

All but very last page of Sinusoidal Application handout.

Chapter 5:

Sect. 5.1 #1-8, 21, 29-38

Due today by 1:00

Sect. 5.2 #1-3, 13-19,23-25,27,29

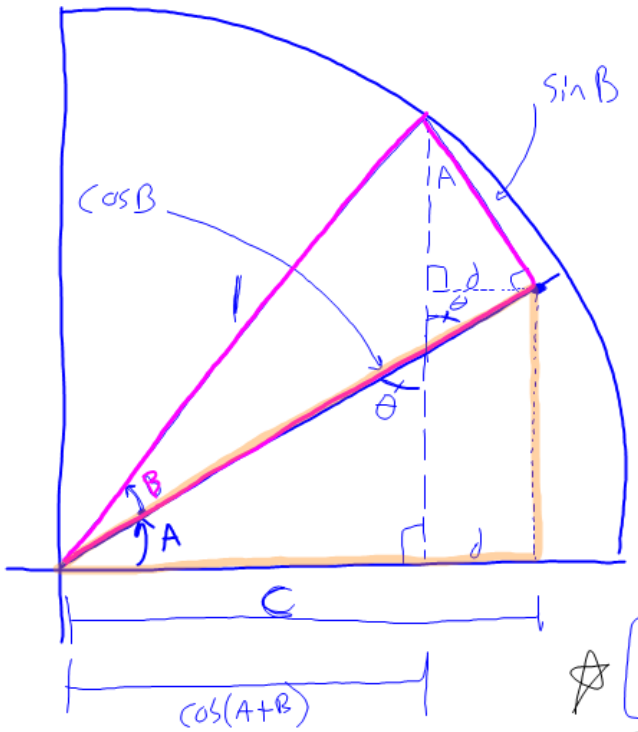
Sect. 5.2 #41,42,44,49,61,63,67,69

Sect. 5.2 #33, 39, 50, 59, 66

P.189 – Hints

- put things in terms of sin & cosine
- Any time you see squared think pythagorean identities
- $1+\sin x$ or $1-\sin x$, think conjugate
  $(1-\sin x)$ $(1+\sin x)$
- Difference of Squares $1-\sin^2 x \longrightarrow \cos^2 x$

$\cos(A+B) = \cos A \cos B - \sin A \sin B$ cosine Sum identity



$\cos(A+B) = C - d$

$A + \theta = 90°$

$\sin A = \frac{d}{\sin B}$

$d = \sin A \sin B$

$\cos A = \frac{C}{\cos B}$

$C = \cos A \cos B$

★ $\cos(A+B) = \cos A \cos B - \sin A \sin B$ Q.E.D.

★ $\cos(A-B) = \cos A \cos B + \sin A \sin B$

$$\cos(A - B) = \cos A \cos B + \sin A \sin B$$

These identities are important in calculus and useful in certain applications. Although a calculator can be used to find an approximation for cos 15°, for example, the method shown below can be applied to get an exact value, as well as to practice using the sum and difference identities. 30, 45, 60

EXAMPLE 1 Finding Exact Cosine Function Values

Find the *exact* value of each expression.

$\cos(45-30) = \cos(15)$

$= \cos 45 \cdot \cos 30 + \sin 45 \sin 30$

(a) cos 15° **(b)** $\cos \frac{5\pi}{12}$ **(c)** cos 87° cos 93° − sin 87° sin 93°

$\frac{\sqrt{2}}{2} \cdot \frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2} \cdot \frac{1}{2} = \frac{\sqrt{6}+\sqrt{2}}{4}$

Solution

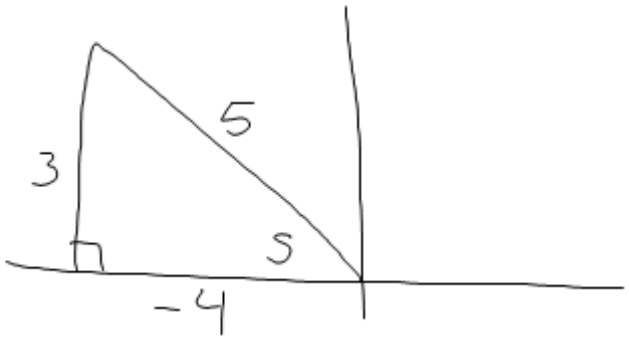
(a) To find cos 15°, we write 15° as the sum or difference of two angles with known function values. Since we know the exact trigonometric function values of 45° and 30°, we write 15° as 45° − 30°. (We could also use 60° − 45°.) Then we use the cosine difference identity.

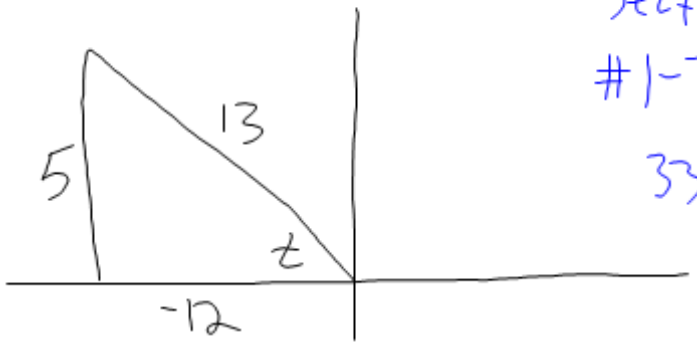
$\sin s = \frac{3}{5}$ $\cos t = -\frac{12}{13}$, Quad II Find $\cos(s+t)$

HW

Sect. 5.3

#1-7, 9, 11, 15-17, 33, 34, 47-49





$\cos(s+t) = \cos(s)\cos(t) - \sin(s)\sin(t)$

$-\frac{4}{5} \cdot \frac{-12}{13} - \frac{3}{5} \cdot \frac{5}{13} = \frac{48}{65} - \frac{15}{65} = \frac{33}{65}$

$30° = \frac{\pi}{6} = \frac{2\pi}{12}$

$45° = \frac{\pi}{4} = \frac{3\pi}{12}$

$60° = \frac{\pi}{3} = \frac{4\pi}{12}$

$\frac{7\pi}{12} = \frac{3\pi}{12} + \frac{4\pi}{12}$